ERA Uncertainty Reduction by Mapping the Nearshore Habitats of Cherry Point, Washington, U.S.A.

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Eelgrass (*Zostera marina*) and macroalgae habitats located in the Cherry Point, Washington region were mapped using geographic information systems (GIS) and remote sensing to reduce uncertainty and refine risk predictions based on previous ecological risk assessments (ERA) of the area. The focus of this study was to identify, quantify, and map the distribution of eelgrass and macroalgae habitats in the Cherry Point region. Eelgrass and associated macroalgae vegetation were classified and mapped at a scale of 1:4800 based on color aerial photographs taken in the summers of 1988, 1992, 1996 & 2000. Intertidal classifications included eelgrass, macroalgae, and intertidal sand and gravel-cobble substrates. To quantify the uncertainties associated with relative risks to eelgrass and macroalgae habitats, Crystal Ball, software was used for Monte Carlo modeling of the data to derive new probability distributions of possible risk estimates. The modeling results increased the accuracy estimates of uncertainty, better quantified habitat and endpoint variability, and improved habitat and endpoint relative risk definitions. This information was used to document changes in the distribution of eelgrass and macroalgae habitats over time. With the recent designation of the Cherry Point region as an aquatic reserve, this study will assist management decisions for the site.